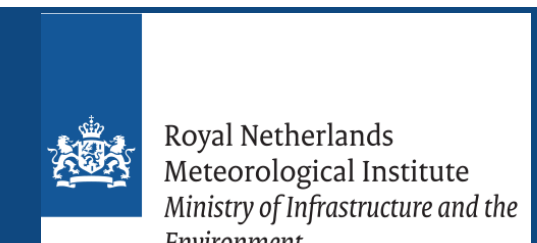


# Co-designing the next generation of climate models for a better informed society



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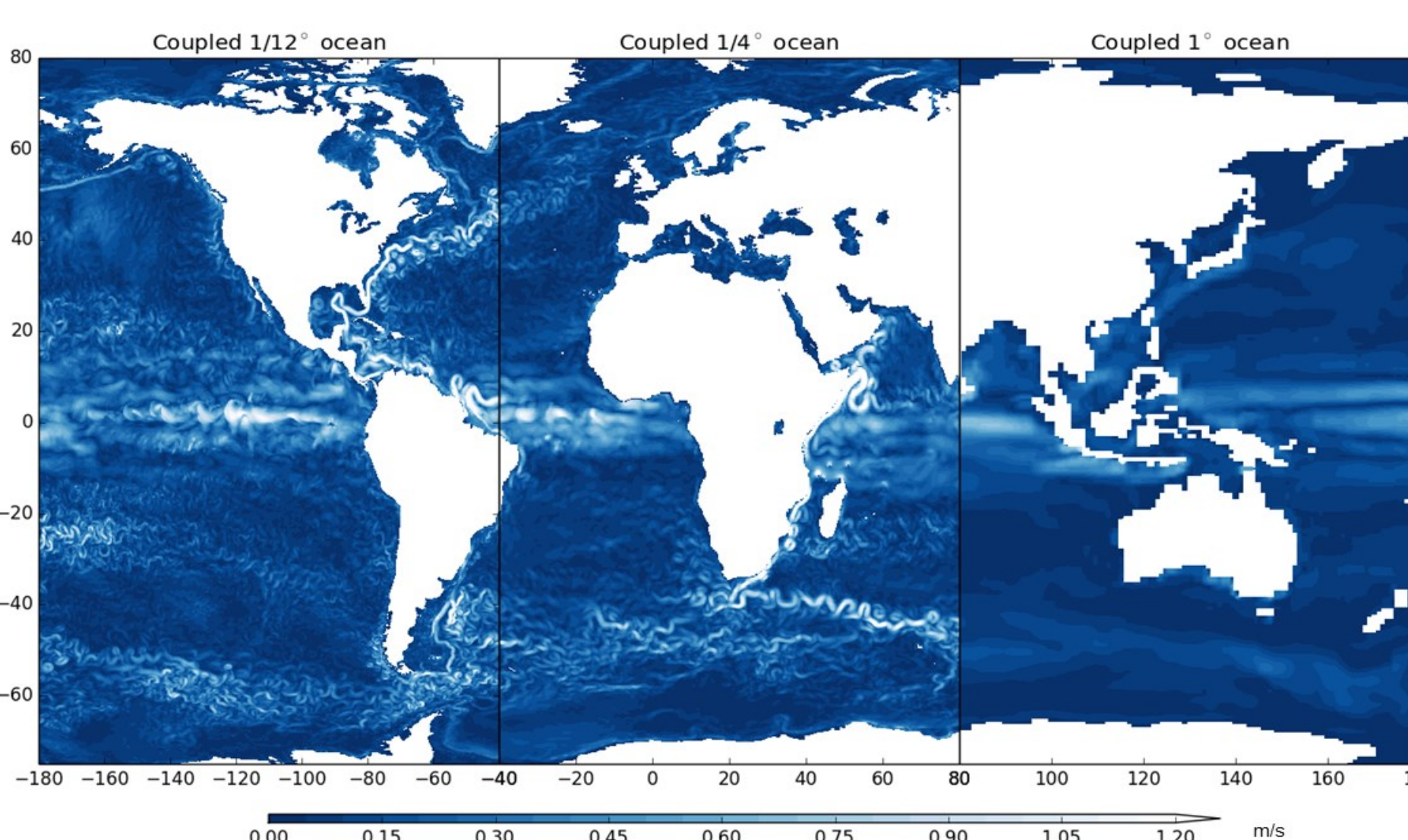
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## PRIMAVERA project

PRIMAVERA (Processed-Based Climate Simulation: Advances in High-Resolution Modelling and European Climate Risk Assessment) is a European Commission-funded project about designing and running new, high-resolution global climate models, and assessing their ability to simulate societally important processes and thereby supporting climate risk assessment activities across Europe.

Representation of ocean surface currents from high to low model resolutions: (left) ~25km, (centre) ~60km and (right) ~130km. Data from HadGEM3-based global coupled model.



## Next generation climate models

Climate models represent the ocean, atmosphere, land, and sea ice by a grid made up of boxes of typically about 100km in size. They are usually run over multiple decades and data are available from the model simulations at best on a daily basis.

PRIMAVERA will provide data at much smaller time-scales (up to hourly) and with a much finer grid size (typically 25km). This promises improved representation of important modes of climate variability such as El Niño Southern Oscillation and the large scale oceanic and atmospheric circulation. Increased resolution improves the modelling of features with potentially severe impacts on Europe.

## Relevance for society

Fine scale climate resolution can help us understand and assess how the risks of high-impact climate events, such as heat waves, floods, and droughts, are projected to change over the next few decades.

PRIMAVERA wants to explore whether these new models are better than existing models at representing the processes most important for society and how the outputs from these models can add value to the methods we currently use to assess climate risk.

To learn this, we collaborate with stakeholders to identify their needs for relevant and actionable climate data and information.



Droughts, floods and storms are examples of societally-important climate hazards

## Co-design

PRIMAVERA project goes beyond simple information dissemination, while enforcing ideas exchange between stakeholders and the project scientists. This participatory design approach will help scientists understand decision-makers' short-term (operational) and longer-term (planning) strategies that are affected by climate variability and change. The scientists will together with stakeholders explore potential risk of future climate variability and change in a series of case studies. Finally, the project will identify unique features of high-resolution simulations that can improve representation of climate events of relevance to society.

## Participatory activities

### Engaging

Using various communication channels:

- \* User Interface platform
- \* Factsheets
- \* Narratives of physical description of hazards and their drivers

### Involving

Through the **survey** and **interviews** with users from energy, transport, agriculture, health, water management, insurance and other sectors.

### Empowering

By involving stakeholders in **co-design** of the project outputs. PRIMAVERA will use stakeholder feedback from the first part of the project to inform a set of bespoke high-resolution climate model simulations, to be run later in the project.

HIGH_TEMP	3.40 (1.2)	5.5%	23.3%	21.9%	24.7%	24.7%
LOW_TEMP	3.19 (1.3)	4.1%	39.7%	13.7%	17.8%	24.7%
SNOW_ICE_FROST	3.49 (1.2)	1.4%	20.3%	36.5%	12.2%	29.7%
RAIN_FLOOD	4.11 (1.1)	1.4%	10.8%	13.5%	24.3%	50.0%
COAST_HZRD	3.09 (1.6)	21.6%	24.3%	8.1%	14.9%	31.1%
DROUGHTS	3.46 (1.4)	14.9%	12.2%	16.2%	25.7%	31.1%
HIGH_WIND	3.77 (1.5)	12.2%	14.9%	4.1%	21.6%	47.3%
LGHTNG_STORMS	3.16 (1.5)	20.5%	15.1%	13.7%	28.8%	21.9%
EARTH_MVMT	2.28 (1.5)	40.3%	28.4%	10.4%	4.5%	16.4%
Mean (SD)		No Effect	Little	Moderate	Large	Very Large

Results from the survey:  
most important hazards and their impact

## Get involved

We want to hear from **users**, **stakeholders** and **policy-makers**!

- \* Sign up for **user-focused PRIMAVERA updates**
- \* Take part in a **one-to-one interview** in person or by phone
- \* Come to one of the **sector-based information-gathering workshops** (to be publicised in due course)

Questions? Email us: [primavera\\_inquiries@bsc.es](mailto:primavera_inquiries@bsc.es)



Scan here to watch a **YouTube video** about PRIMAVERA

